

# Off-Plane Gratings

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# Status

## ► RGS Requirements

- Set Based on In-plane Capability
- In 1996, Before Chandra Launch

## ► But with Off-plane:

- At R~300 Can Build a Module to TRL 6 in 18 months
- At R~800 Can Probably Hit TRL 6 in under 2 years
- At R~3000 Flatness requirements dominate  
needs serious development

# In December We Proposed

- ▶ Panter Test – Summer 2006
  - Show Resolution & Efficiency Simultaneously
  - Single (thick) radial grating in XMM beam
  - Goal is to show ruling technology is ready
- ▶ Create and Document Full Off-plane Design
  - Quantify Risk and Degraded Performance
- ▶ Build a Module
  - Goal of TRL 6 for R~800

*But NASA's New Budget Puts This at Risk*

# Science Issue: Resolution

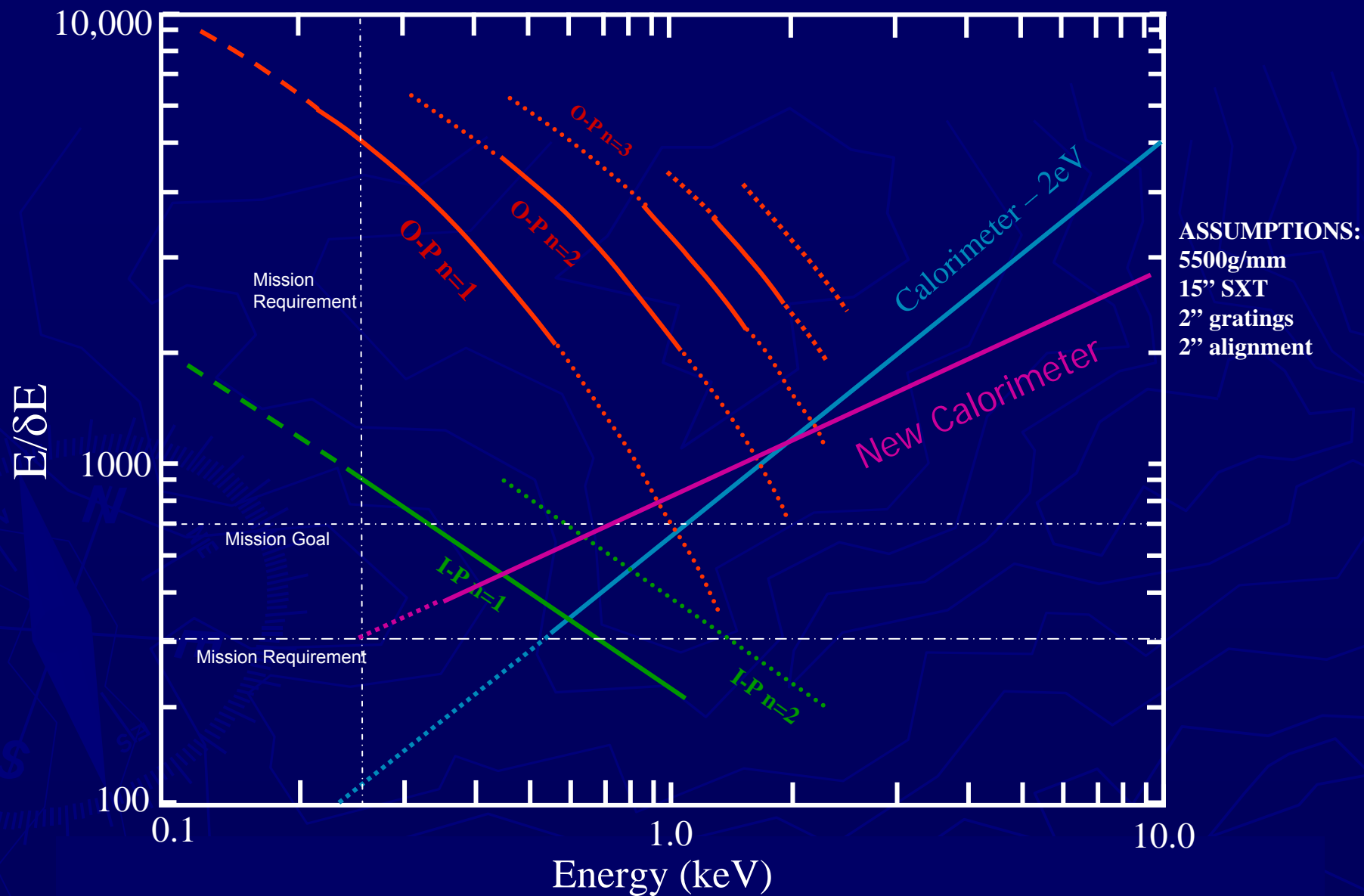
(Here's Where I Turn Into Jeff Linsky)

- ▶ Goal 3000
- ▶ Requirement 300
- ▶ Minimum ?
- ▶ *Requirement* is usually a self-fulfilling prophecy because any good Project Manager will put priority on meeting only that level.
- ▶ *Minimum* is that level at which there is no scientific justification left.
- ▶ I believe that we have a case where the minimum is higher than the requirement.

From 9/02 FST

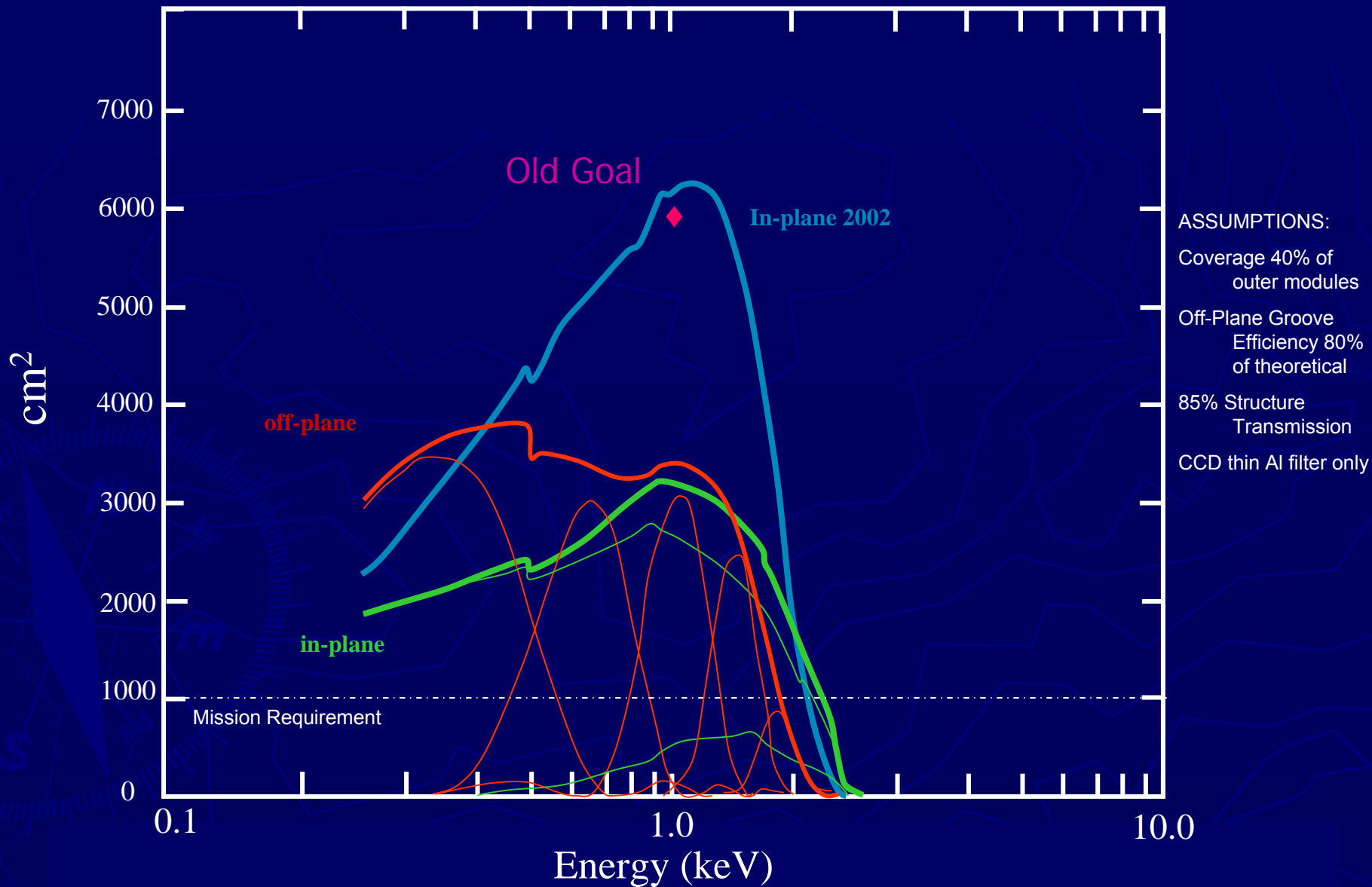
# Resolution

———— Primary Response  
..... <35% Response  
----- Extended CCD

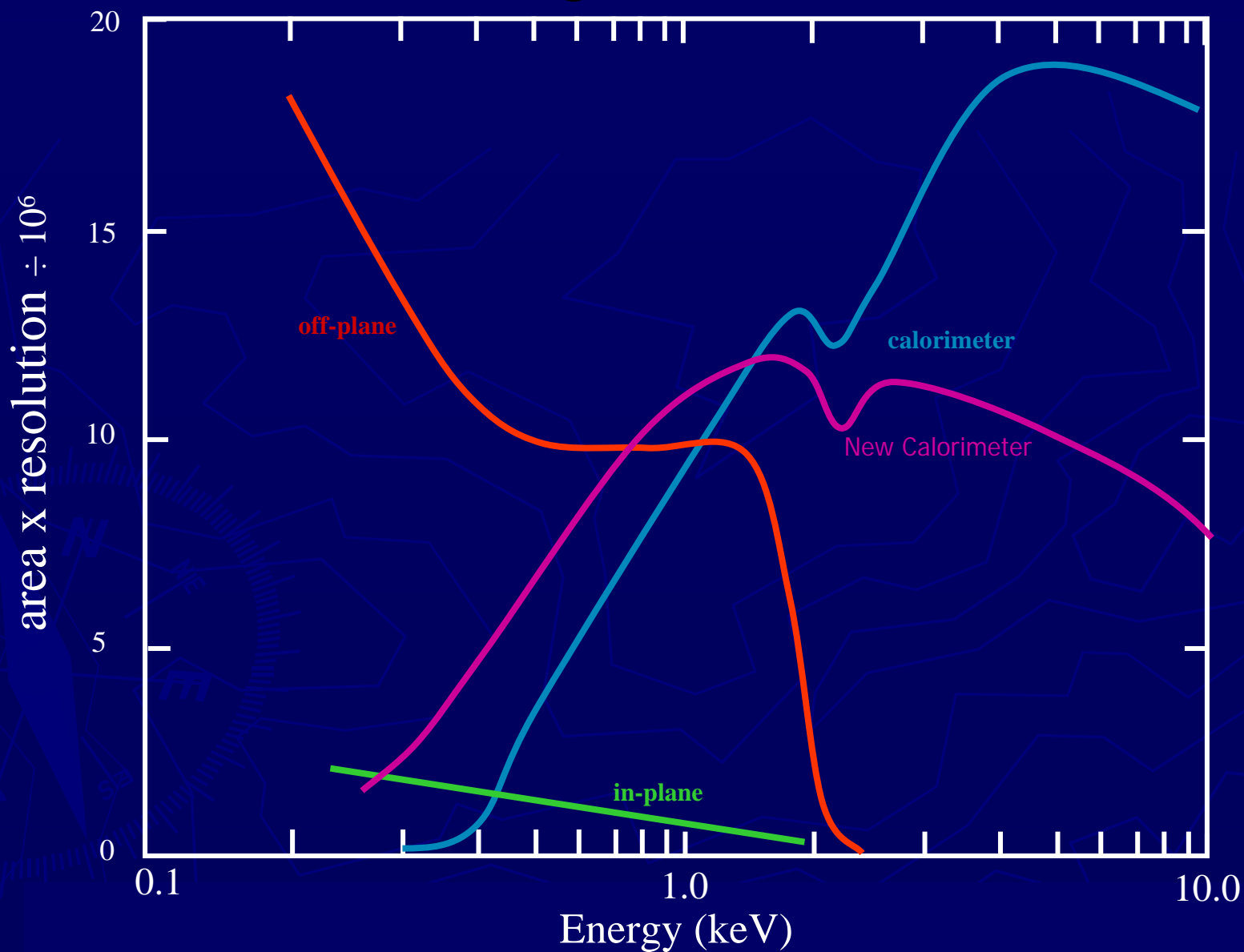


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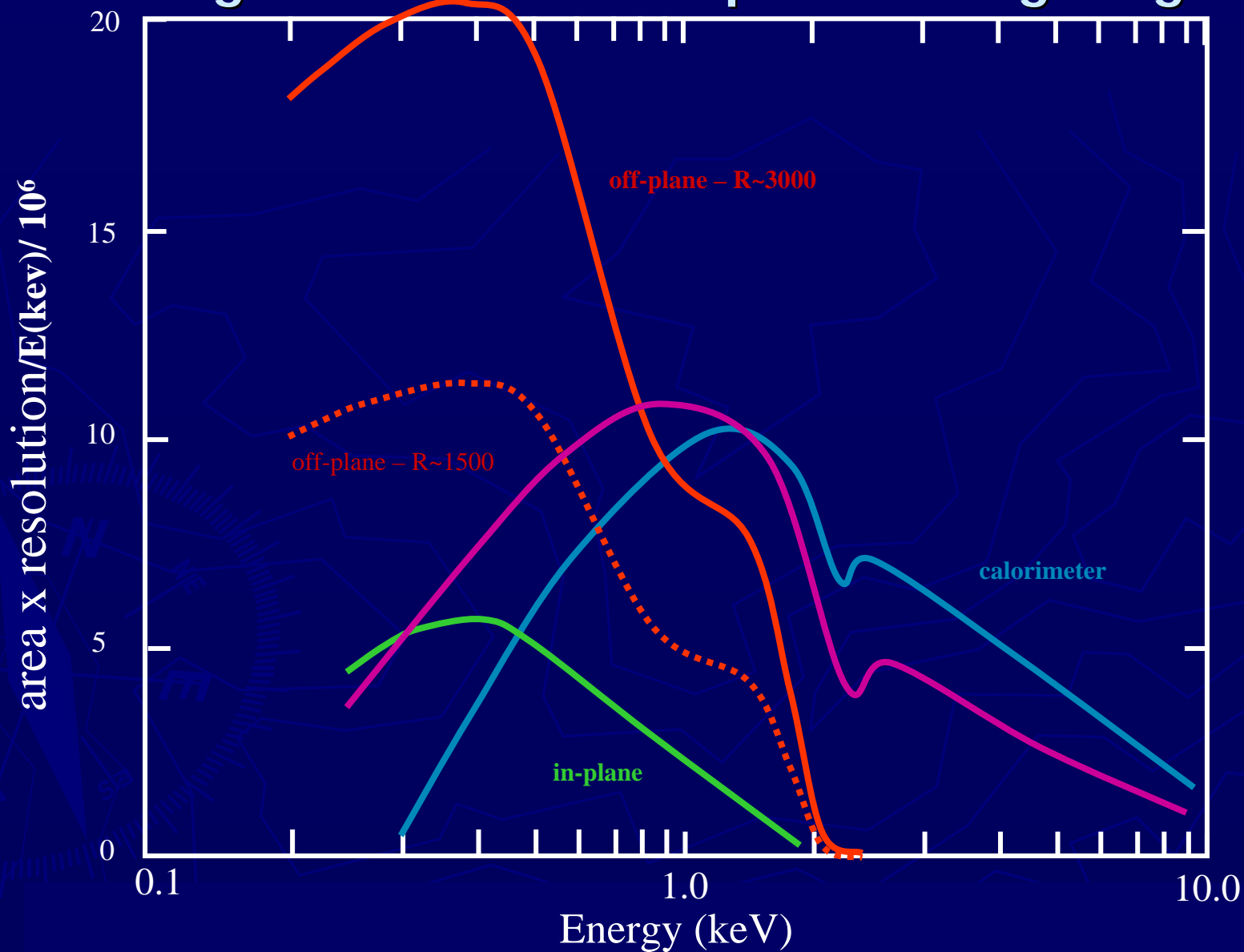
## Effective Area



# Figure of Merit



# Figure of Merit with Spectral Weighting





# So.....

- ▶ Throw The RGS Off Now
- ▶ OR
- ▶ Increase Requirement/Goal to 1500/3000

Execute Us Now. Torture Is Illegal in Blue States.

# In The Current Context

- ▶ Facing A Tough Downselect
  - LISA, JDEM and possibly others (TPF?)
- ▶ Saving X-ray Community Not Enough
  - Look at what's happened to UV community
- ▶ Excellent Science Not Enough
  - The Others are Excellent Too

# Response

- ▶ Compelling Science
  - Elevator Quality
  - High Resolution  $>1500$
- ▶ Lower Mission Cost
  - Can There Be Any Other \$Billion+ Mission Beside JWST in the Coming Decade?